

# Notice of Allowability

Application No.

10/628,912

Examiner

Walter L. Lindsay, Jr.

Applicant(s)

QUEK ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an Election filed 8/26/2004.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ The drawings filed on 28 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 7/28/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is in response to an Election filed on

Currently, claims 1-20 are pending.

#### ***Election/Restrictions***

1. Applicant's election of claims 1-10 in the reply filed on 8/30/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 11-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected device, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8/30/2004.
3. This application is in condition for allowance except for the presence of claims 11-20 to a device that is non-elected without traverse. Accordingly, claims 11-20 have been cancelled.

#### ***Allowable Subject Matter***

4. Claims 1-10 are allowed.
5. The following is an examiner's statement of reasons for allowance: the prior art, either singly or in combination fails to anticipate or render obvious, the limitations of:  
...forming a thyristor having at least four layers with three P-N junctions therebetween, at least two of the layers being formed horizontally on the semiconductor

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substrate and at least two of the layers being formed vertically on the semiconductor substrate, as required by claim 1.

Lastly the prior art, either singly or in combination fails to anticipate or render obvious, the limitations of:

...depositing nitride spacers around at least one of the polysilicon gates and the P-Si pillar;

forming N+ implantations in the N- source/drain areas, in the top of the P-Si pillar, and in the top of the polysilicon gate over the P-implantation region;

forming a P+ implantation in the N-implantation adjacent the P-Si pillar, using the nitride spacer around the P-Si pillar to self-align the P+ implantation thereadjacent;

forming respective silicide layers over the N+ and P+ implantations; and

forming an interconnect between the silicide layer over the top of the P-Si pillar and one of the silicide layers over the N- source/drain areas, as required by claim 6.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter L. Lindsay, Jr. whose telephone number is (571) 272-1674. The examiner can normally be reached on Monday-Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John F Niebling can be reached on (571) 272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WLL

October 14, 2004

John F. Niebling  
Supervisory Patent Examiner  
Technology Center 2800